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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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LyondellBasell Industries 3801 WEST CHESTER PIKE NEWTOWN SQUARE, PA 19073				
EXAMINER				
OCHYLSKI, RYAN M				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/566,392

Applicant(s)

KUEHL ET AL.

Examiner

RYAN OCHYLSKI

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SD/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This is in response to the Applicant's reply of November 17, 2008. No claims were cancelled, amended, or added.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 9-11 and 13-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Goins, Robert A. (US 3,089,194, already of record).

3. Regarding Claim 9, Goins teaches a process for granulating a polymer powder having a multimodal molar mass distribution comprising:
preparing the polymer powder in a polymerization reactor (Column 2 Lines 23-34) and introducing the polymer powder into an extruder; melting and homogenizing the polymer powder in the extruder; and pressing the polymer powder through an extrusion die (Column 2 Line 68 - Column 3 Line 3 and Figure 1), wherein an organic solvent or suspension medium is added to the polymer powder in an amount from 0.001 to 20 % by weight based on a total weight of the polymer powder prior to introducing the polymer powder into the extruder (Column 2 Lines 62-67).

4. Regarding Claim 10, Goins further teaches the organic solvent or suspension medium is prepared in suspension in the polymerization reactor; the organic solvent or suspension medium not being subjected to complete drying (Column 2 Lines 23-34 and

Figure 1). Goins does not require complete drying of the polymer; in fact Goins allows for the further addition of solvent to the powder.

5. Regarding Claim 11, Goins further teaches the organic solvent or suspension medium is introduced to a dry polymer powder (Column 2 Lines 23-34 and Figure 1). Goins does not require the solvent to be added to the polymerization zone and allows the solvent to be added to the dry polymerization product upon exit from the polymerization zone.

6. Regarding Claims 13-15, Goins further teaches the organic solvent or suspension medium in the polymer powder is in an amount from 0.0015 to 15 % by weight, 0.002 to 10 % by weight, or 0.01 to 5 % by weight (Column 2 Lines 62-67).

7. Regarding Claim 16, Goins further teaches the organic solvent or suspension medium is a saturated or cyclic, or polycyclic or aromatic hydrocarbon having from 3 to 18 carbon atoms (Column 5 Lines 5-11).

8. Regarding Claim 17, Goins further teaches the organic solvent or suspension medium has from 4 to 12 carbon atoms (Column 5 Lines 7-9).

9. Regarding Claims 18-19, Goins further teaches the polymer powder comprises the thermoplastic polymer polyethylene (Column 2 Lines 23-34).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goins, Robert A. (US 3,089,194, already of record) as applied to Claim 1 above in view of Bilhorn, John M. (EP 0393379, already of record).

14. Regarding Claim 12, Goins teaches the organic solvent or suspension medium is in the polymer powder in an amount from 0.001 to 20 % by weight (Column 2 Lines 62-67).

However, Goins does not teach that the organic solvent or suspension medium is introduced to the polymer powder in the extruder.

In analogous art pertaining to polymer extrusion processing, Bilhorn teaches that the organic solvent or suspension medium is introduced to the polymer powder in the extruder (Column 4 Line 55 - Column 5 Line 3) for the benefit of more precise metering and softening of the polymer.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to combine Goins with Bilhorn for the benefit of more precise metering and softening of the polymer, resulting in more efficient and cost-effective use of the organic solvent or suspension medium.

Response to Arguments

15. Applicant's arguments filed on November 17, 2008 have been fully considered but they are not persuasive. Applicant argues that the Goins does not teach each and every limitation of Independent Claim 9. Specifically, applicant argues that the Goins does not teach claim element (a), "preparing the polymer powder," or claim element (c), "adding 0.001 to 20% of solvent or suspension medium to the powder prior to extruding the powder," but only how to remove solvent from the polymers made by solution polymerization. The Examiner disagrees.

16. Regarding claim element (a) and looking at Column 2 Lines 23-34 of Goins, Goins teaches feeding an ethylene monomer to a polymerization zone which starts a

process that results in the production of the solid discrete polymer particles of Column 2 Line 68, a process that reads on "preparing the polymer powder."

17. Regarding claim element (c), note that the step of adding solvent to the powder prior to extruding the powder is considered a state function with respect to all of the pre-extrusion teachings of Goins, wherein the final net solvent concentration immediately prior to the extrusion step is the amount of solvent added. Also note that before the flashing step, Goins teaches admixing solvent with the powder in the polymerization zone (Column 2 Lines 23-34). Now looking at Column 2 Lines 62-67 of Goins, the flashing to a final net solvent concentration range of 0-20% immediately prior to the extrusion step thus completes a process that reads on "adding 0.001 to 20% of solvent or suspension medium to the powder prior to extruding the powder."

18. Regarding claim element (b), applicant correctly points out that neither Goins nor Bilhorn explicitly discuss the utility of a multimodal molar mass distribution when preparing the polymer powder. Additionally, the Examiner acknowledges that while the modifier "multimodal" is used in the claims for the only time in the preamble of Independent Claim 9, further references to the polymer powder through the claims implicitly incorporate the "multimodal" limitation. However, as Applicant does not provide a definition for "multimodal," "multimodal" is broadly interpreted as describing any distribution wherein two local maxima are separated by a local minimum. Goins is silent as to whether the polyethylene is multimodal or not; however, the possibility and probability of the polyethylene not being modal (i.e. a perfect monomodal distribution of polyethylene) during the polymerization event is vanishingly small, would require

specific effort and thus the Examiner considers the polymerization process of Goins to prepare a polymer powder having a multimodal molar mass distribution, and thus such limitation is anticipated.

19. Regarding Dependent Claim 12, Applicant further argues that Bilhorn does not teach adding a solvent to the powder during the extrusion. The Examiner disagrees. Note that in Column 5 Lines 4- 25, Bilhorn describes a barrel for mixing and kneading polymeric material with a pushing mechanism that comprises a screw, a process considered to be extrusion. Now looking at Column 4 Line 55 – Column 5 Line 3 of Bilhorn, Bilhorn teaches providing solvent to the barrel from a tank, a process that reads on “adding solvent to the powder during the extrusion” and it would remain obvious to a person having ordinary skill in the art at the time of the invention to combine Goins and Bilhorn for the benefit of more precise metering and softening of the polymer, resulting in more efficient and cost-effective use of the organic solvent or suspension medium.
20. Thus, the Examiner maintains the rejections of the independent claims and their respective dependent claims as stated in the rejection above.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
22. Backman et al. (US 2002/0045711) cite extruding multimodal polyethylene.
23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN OCHYLSKI whose telephone number is 571-270-7009. The examiner can normally be reached on Monday through Thursday and every other Friday from 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on 571-272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

rmo

/Joseph S. Del Sole/
Supervisory Patent Examiner, Art Unit 1791